

# DEPARTMENT OF CONSUMER & INDUSTRY SERVICES

## DIRECTOR'S OFFICE

### GENERAL INDUSTRY SAFETY STANDARDS

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These rules take affect 15 days after filing with the Secretary of State

(By authority conferred on the director of the department of consumer and industry services by sections 16 and 21 of Act No. 154 of the Public Acts of 1974, as amended, and Executive Reorganization Order No. 1996-2, being §§408.1016, 408.1021, and 445.2001 of the Michigan Compiled Laws))

R 408.11601 - R 408.11613 are rescinded by R 408.10098, R 408.10032, rescinded by R 408.18599, R 408.10003, R 408.10033, and R 408.10098 of the Michigan Administrative Code, appearing on pages 3397 and 3402 of the 1979 Michigan Administrative Code and page 661 of the 1988 Annual Supplement to the Code, are amended, and R 408.10037 is added, to read as follows:

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## PART 1. GENERAL PROVISIONS

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### GENERAL PROVISIONS

#### R 408.10001. Scope.

**Rule 1.** This part sets forth general rules for the employer and the employee in, around and about a place of employment, except that where a specific rule is set forth in another standard, the general rule is preempted.

#### R 408.10003. Definitions; A to M.

**Rule 3.** (1) "Aisle" means a designed path of travel for mobile equipment and employees.

(2) "Approved" means approval by the director of consumer and industry services or his or her duly designated representative.

(3) "Confined space" means an enclosed space, such as a bin, furnace, cupola, tank, vessel, vault, or well.

(4) "Equivalent" means an alternate design or feature that provides an equal or greater degree of safety.

(5) "Explosive atmosphere" means an atmosphere in which the contaminants are within the minimum range in air, oxygen or other oxidizer which would explode on introduction of a source of ignition.

(6) "Flammable" means to ignite easily, burn intensely, or to have a rapid rate of flame spread.

(7) "Hazard" means an unsafe condition or procedure which could result in an injury.

(8) "Machine" means a powered instrument or device that transmits force or motion in a predetermined manner. It may be fixed in place or transportable but, is not hand held.

#### R 408.10004. Definitions P.

**Rule 4.** (1) "Passageway" means a path of travel for an employee only.

(2) "Pinch point" means a point at which it is possible to be caught between the moving parts of a machine, or between the moving and stationary parts of a machine or between material and any part of a machine.

(3) "Point of operation" means the point on a machine where work is performed.

(4) "Power failure" means the loss of power from the energy sources.

(5) "Power source" means the energy supplied by hydraulic, pneumatic, electrical or other source.

#### R 408.10005. Definitions S.

**Rule 5.** (1) "Safety factor" means the ratio of the breaking strength of a piece of material or object to the maximum designed load or stress applied when in use.

(2) "Shall" means mandatory.

(3) "Should" means recommended.

#### R 408.10011. Employer responsibilities.

**Rule 11.** An employer shall comply with all of the following:

- Provide training to each newly assigned employee regarding the operating procedures, hazards, and safeguards of the job.
- Not knowingly authorize a process, machine, or equipment to be used which does not meet applicable state safety standards.
- Establish, maintain and assure the utilization of a lockout procedure as prescribed in rule 32.
- Provide a chain, bracket, or other device and assure its use at all times to restrain compressed gas cylinders from falling.

**R 408.10012. Employee responsibilities.**

**Rule 12.** An employee shall:

- (a) Not operate a machine or equipment until trained in the operating procedures, hazards and safeguards and has been assigned to do so by the employer.
- (b) Report to the supervisor any recognized hazard.
- (c) Use required personal protective equipment or devices as prescribed in this part or a specific standard.
- (d) Not remove a guard or other safety device except for authorized servicing purposes. The guard or other safety device shall be replaced or equivalent guarding provided before the machine or equipment is returned to normal operation.

**R 408.10013. Personal protective equipment.**

**Rule 13.** (1) Personal protective equipment shall be maintained in a condition to protect the employee from a hazard which would cause an injury or disease. (See general industry safety standard Part 33, Personal Protective Equipment, being R 408.13301 et. seq. of the Michigan Administrative Code.)

(2) The equipment shall be of safe design and construction to perform the intended function.

(3) Personal protective equipment required by applicable state safety standards and employee owned equipment shall be maintained by an established program to assure the continuing adequacy, condition, and sanitation of the equipment.

**R 408.10015. Housekeeping**

**Rule 15.** (1) Materials, including scrap and debris, shall be piled, stacked, or placed in a container in a manner that does not create a hazard to an employee. All places of employment, aisles, passageways, storerooms, and service rooms shall be kept clean and orderly.

(2) Garbage capable of rotting or becoming putrid shall be placed in a covered container. Container contents shall be disposed of at frequent and regular intervals.

(3) The floor of a work area, passageway, or aisle shall be maintained free of hazardous accumulations of scrap, debris, water, oil, grease, and other slip and trip hazards, except where an immediate emergency operation must be performed.

(4) Where a wet process, such as, but not limited to, plating operations, food processing, or car washing, is used, drainage shall be maintained or false floors, platforms, or mats used. Where an employee is required to work on a wet surface in a wet process, the surface shall be slip-resistant.

(5) Where vegetation is a hazard, an employee shall be protected by vegetation control or other means of protection, such as, but not limited to, a barrier, personal protective equipment, or medication.

(6) A storage area shall be kept free from accumulations of materials that constitute a hazard from fire, explosion, or pest harborage.

**R 408.10016. Work in confined or hazardous spaces.**

**Rule 16.** (1) This rule is intended to provide protection to an employee from traumatic injury. Where a health hazard, such as possible toxic atmosphere or lack of oxygen, may exist, reference is made to Michigan department of consumer and industry services, division of occupational health standards for tests and procedures to be followed before entry into a confined or hazardous space.

(2) When an employee enters a confined space, such as, but not limited to, a bin, silo, hopper, or tank, which

contains bulk or loose material that could engulf the employee:

- (a) The employee shall be provided with and use a safety belt attached to a lifeline as prescribed in Part 33. Personal Protective Equipment, being R 408.13301 et seq. of the Michigan Administrative Code.
- (b) The lifeline shall be strung from the employee overhead and back down to the employee where it shall be tied to the employee's "D" ring, keeping the lifeline reasonably taut at all times. When this is done, another employee shall be in sight or within hearing distance. When this is not practical, the lifeline shall be snubbed overhead and kept reasonably taut at all times by a person stationed at a safe location who is capable of rendering assistance if required.
- (c) Communications, such as visual, voice, or signal line, shall be maintained between the person outside the confined space and all employees in the confined space.
- (d) If an employee working in a confined space must be lifted vertically to be removed from the space, there shall be at least 1 employee working in the immediate vicinity to assist the employee stationed outside the confined space, or a mechanical means to lift the employee out of the confined space shall be provided before work starts.
- (e) The supply of material shall be shut off, and the discharge shall be shut off, if feasible.
- (3) Before an employee is permitted to enter a confined space which could contain an explosive atmosphere, the atmosphere shall be tested to determine if the atmosphere is within or above the explosive range.
- (4) An employee shall not enter a confined space having an atmosphere in or above the explosive atmosphere unless involved in correcting a condition which caused the explosive atmosphere and the condition cannot be corrected by any other means and the atmosphere cannot be purged below the explosive limit. All sources of ignition shall be prohibited in or around the space.
- (5) An atmosphere which could be deficient in oxygen or contain harmful toxic substances shall be tested as prescribed by the division of occupational health of the department of consumer and industry services in O.H. rule 3301 of its standards.

**R 408.10017. Lubrication.**

**Rule 17.** (1) Lubrication shall be accomplished by 1 of the following:

- (a) Manually, when the machine can be shut off and locked out.
- (b) Automatic pressure or gravity feed system.
- (c) Extension pipe or tube leading to an area outside of guards or away from any hazard.
- (d) A means of lubrication which would provide equal or greater protection than (a), (b), or (c) for the employee.
- (2) Where access through a guard is provided, and the opening exceeds the table 2 specifications, the opening shall be provided with a hinged or sliding self-closing cover.

**R 408.10018 Color coding.**

**Rule 18.** (1) A safety can shall be red in color.

(2) A stop bar, stop button, electrical switch, or other mechanical device for the emergency stopping of machinery, excluding cables, shall be red in color.

(3) Yellow shall be the basic color for designating caution and for marking physical hazards. Solid yellow, yellow and black stripes, or yellow with a suitable contrasting background may be used interchangeably.

#### **R 408.10021. Aisles and floors.**

**Rule 21.** (1) When mobile equipment and an employee use the same aisle, dock or doorway, clearances shall be provided and maintained to assure safe passage for the equipment and employee.

(2) An aisle and passageway shall be marked or otherwise identified.

(3) A floor shall be maintained free of holes, loose boards and protruding objects which would be a hazard to an employee.

(4) The maximum designed safe load limit of a floor or roof shall not be exceeded.

#### **R 408.10022. Dockboards.**

**Rule 22.** (1) A dockboard shall be of an approved design and construction capable of supporting the imposed load.

(2) A portable dockboard shall be:

(a) Secured in position by anchoring or devices which will prevent it slipping.

(b) Provided with handholds or other means for placement which will protect the employee while handling the dockboard.

(3) A positive means such as, but not limited to, chocks, blocks or brakes shall be used to restrict a vehicle or rail car from moving while a dockboard is in position.

(4) A dockboard used in connection with a powered industrial truck shall also comply with rule 2165 of the general industry safety standards commission standard, Part 21. Powered Industrial Trucks, being R 408.12165 of the Michigan Administrative Code.

(5) A powered dockboard shall be designed and constructed as prescribed in United States Department of Commerce Commercial Standard CS202-56 (1961), Industrial Lifts and Hinged Loading Ramps, which is hereby incorporated by reference, and may be inspected at the Lansing office of the Michigan department of consumer and industry services. This standard may be purchased at a cost of \$1.00 from the Michigan Department of Consumer and Industry Services, State Secondary Complex, 7150 Harris Drive, Box 30643, Lansing, Michigan 48909.

#### **R 408.10026. Derailers, bumper blocks and clearance signs.**

**Rule 26.** (1) Where rolling railroad cars on a spur track could make contact with a rail car being loaded or unloaded, repaired or serviced, or enter a building, work or traffic area, derailleurs, bumper blocks, a blue flag or blue light, or other equivalent protection shall be used.

(2) A visible "Close Clearance" sign shall be used to indicate close clearance between rail car and an adjacent fixed object if the fixed object is located less than 8 1/2 feet from the center of a straight track and 9 feet from the center of a curved track.

#### **R 408.10031. Machine installations.**

**Rule 31.** (1) Electrically powered machines shall be grounded as prescribed in Article 250, paragraphs 42 and 43 of the National Electrical Code which is incorporated herein by reference and may be inspected at the Lansing office of the department of consumer and industry services. The National Electrical Code may be purchased at a cost of \$5.50 from the National Fire Protection Association, 470 Atlantic, Boston, Massachusetts 02210, or the Michigan

Department of Consumer and Industry Services, 7150 Harris Drive, Box 30643, Lansing, Michigan 48909.

(2) A machine shall be placed so that it will not be necessary for the operator or other employee tending the machine to stand in an aisle.

(3) A machine shall be located so that there will be space for the employee to handle the material and operate the machine with no interference to or from another employee or machine.

(4) A machine installed on a bench, table or stand shall be designed or secured to prevent unintentional movement or tipping.

(5) A stationary machine shall be anchored or provided with antislip pads to prevent unintentional movement.

#### **R 408.10032. RESCINDED.**

#### **R 408.10033. Machine controls.**

**Rule 33.** (1) Powered electrical equipment shall have an on-off switch.

(2) When unexpected motion would cause injury, an actuating machine control, except for an emergency device for a powered fixed or transportable machine, shall be guarded or located to prevent accidental actuation.

(3) Unless its function is self-evident, each operating control device shall be identified as to its function.

(4) A powered machine that is attended by more than 1 employee shall be equipped with an actuation device for each employee who is exposed to a point of operation hazard. The machine shall activate only after concurrent use of all actuation devices.

(5) When unexpected motion would cause injury, precautions shall be taken to prevent a machine from automatically restarting upon the restoration of power after a power failure.

(6) Where a machine work station is remotely located from the machine controls, either a red emergency stop device shall be provided at the machine work station if a hazard exists that could cause an injury or the actuation of the controls shall require continuous depression during the hazardous portion of the machine cycle.

(7) Equipment that is operated in series so that one piece of equipment automatically supplies another shall be interlocked so that when any equipment in the series is stopped for any reason, the initial stopping causes the upstream equipment to stop if continued operation would create a hazard. Reactivation shall require a separate positive action by the employee who initiated the stop.

#### **R 408.10034. Machine guards and devices.**

**Rule 34.** (1) Two hand-control devices shall be the anti-tie down type and located in a manner to prevent bridging. Operation shall require manual activation of both controls until a point is reached in the cycle where the operator cannot remove his/her hands and place them within a pinch point. If repeating would cause an injury, an anti-repeat device shall be incorporated into the control system.

(2) Guards shall be secured to the machine, if possible, or to other fixed objects. The guard shall not create a hazard in itself.

(3) A point of operation guard or device shall be as prescribed in a specific standard, or, in the absence of a specific standard, shall be designed and constructed, when required, to prevent the machine operator exposed to the hazard from having any part of his/her body in the hazardous area during the operating cycle. A guard or device for the point of operation of a nonproduction arbor press or straightening press is not required if the machine is equipped

with a hand control that is designed to stop the ram action or return the ram to the up position when released.

(4) Hand tools shall not be substituted for the required guarding or point of operation devices, except that a hand tool may be used as prescribed in subrule (5) for a press brake operation. Where hand tools are used for placing into, and removing material from a point of operation, they shall be designed so that the operator is not required to place a hand within the point of operation.

(5) A bending operation on a press brake involving less than 25 pieces of 1 specific bend, if not guarded, shall require the use of a hand tool when the operator must hold the work piece within 4 inches of the point of operation, and a conspicuous sign shall be posted on the machine stating "Hand tools shall be used to hold stock."

(6) A revolving barrel, container, or drum exposed to contact shall be guarded by a standard barrier, an enclosure, or equivalent protection where a hazard exists. Access through a standard barrier or enclosure shall be by a gate equipped with an interlock, which shall disconnect the power when the gate is opened and require manual reactivation of a start button. A constant pressure jog control that bypasses the interlock may be used to aid loading and unloading.

(7) Blades of a fan, located within 7 feet of a floor or working level and used for ventilation or cooling of an employee, shall be guarded with a firmly affixed or secured guard. Any opening in the guard shall have not more than 1 of its dimensions more than 1 inch and the distance to the blade shall not be less than that prescribed in table 1.

(8) A fan used in process cooling whose blade is less than 7 feet above the floor or working level shall meet the distance requirements of table 2. Where the openings are larger than those shown in table 2, the distance from the guard to the blade shall prevent any part of the employee's body from making contact with the blade.

(9) When an employee is exposed to a hazard created by a pinch point other than point of operation, the hazard shall be guarded or the employee otherwise protected.

(10) A band or circular saw shall be guarded as prescribed in general industry safety standards commission rules 2722 and 2732 of Part 27. Woodworking Machinery, being R 408.12722 and R 408.12732 of the Michigan Administrative Code.

(11) An extractor, parts washer, or tumbler, manually controlled and equipped with an inside revolving cylinder, shall be equipped with a cover or door interlocked in such a manner as to prevent opening the door when the inside cylinder is in motion, and to prevent power operation of the inside cylinder when the cover or door is open. An inch control or constant pressure control which bypasses the interlock may be used to aid loading and unloading.

(12) An employee shall not place his/her body beneath equipment, such as vehicles, machines, or materials, supported only by a jack, overhead hoist, chain fall, or any other temporary single supporting means, unless safety stands, blocks or other support system capable of supporting the total imposed weight is used to protect the employee in case of failure of the supporting system.

#### **R 408.10036. Air under pressure.**

**Rule 36.** (1) Air pressure at the discharge end of a portable air blow gun or portable air hose shall be less than 30 pounds per square inch gauge when dead-ended.

(2) When air under pressure is used to remove chips and dust, a chip guard, such as a fixed or removable shield, safely located, shall be provided to protect an employee in an adjacent area. The employee using air under pressure shall be provided with and use the personal

**TABLE 1**

Smallest dimension in guard (inches):	Minimum distance from guard to blade:
Greater than 0 up to 1/4 inclusive	1/2 inch
Greater than 1/4 up to 3/8 inclusive	1 1/2 inches
Greater than 3/8 up to 1/2 inclusive	2 1/2 inches
Greater than 1/2 up to 3/4 inclusive	4 inches
Greater than 3/4 up to 1 inclusive	6 times the smallest dimension

**TABLE 2**

Distance of opening from point of operation hazard (inches)	Maximum width opening (inches)
1/2 to 1 1/2	1/4
1 1/2 to 2 1/2	3/8
2 1/2 to 3 1/2	1/2
3 1/2 to 5 1/2	5/8
5 1/2 to 6 1/2	3/4
6 1/2 to 7 1/2	7/8
7 1/2 to 12 1/2	1 1/4
12 1/2 to 15 1/2	1 1/2
15 1/2 to 17 1/2	1 7/8
17 1/2 to 31 1/2	2 1/8

protective equipment as prescribed in Part 33. Personal Protective Equipment, being R 408.13301 et seq. of the Michigan Administrative Code, to the extent necessary to protect against hazards created by the operation.

(3) Air under pressure, used in a manner which could cause injury, shall not be used for cleaning clothes while being worn or directly applied to any part of the body.

(4) Air under pressure shall not be used to move flammable dust in an area containing open flames or spark producing equipment.

(5) Air under pressure shall not be used to remove toxic dusts in an employee environment.

(6) An employee shall be protected by guards or location when pressure tests are being performed on materials or equipment where rupture or failure would create a hazard.

#### **R 408.10037. Cleaning of containers.**

**Rule 37.** An employer shall not distribute, make available, furnish, or supply a container that is known to have contained a hazardous substance unless the container has been thoroughly cleaned to remove all traces of any hazardous substance, except where the container is refilled with the same substance.

#### **R 408.10098 Rescission of federal OSHA and state standards.**

**Rule 98.** (1) The following federal OSHA general industry standards, adopted by section 14 of Act No. 154 of the Public Acts of 1974, as amended, being §408.1014 of the Michigan Compiled Laws, are rescinded:

- 1910.144 Safety color code for marking physical hazards.
- 1910.176 Handling material – general.
- 1910.214 Cooperage.
- 1910.166 Inspection of compressed gas cylinders
- 1910.167 Safety relief devices for compressed gas cylinders.
- 1910.168 Safety relief devices for cargo and portable tanks storing compressed gases.

(2) R 408.11601 to R 408.11613 of the Michigan Administrative Code, appearing on pages 3583 to 3605 of the 1979 Michigan Administrative Code, are rescinded.